Over 5,000 attendees visited the tradeshow portion of the 8th Seminar on Special Foundations Engineering and Geotechnics (SEFE 8) in São Paulo, Brazil, with over 700 people attending the technical sessions. DFI exhibited and co-sponsored the event with ABEF (Brazilian Contractor Association) and ABMS (Brazilian chapter of the ISSMGE) on June 23-25, 2015.

Several DFI members were invited to deliver keynote lectures during the well-attended three-day conference:

- Luca Bruni, from Servizi e Costruzioni in Italy, spoke on the status of the DFI-EFFC Carbon Calculator and how the tool can and should be used to facilitate the selection of less impactful design and construction methods.
- Sam Paikowsky, from the University of Massachusetts, Lowell in the U.S., presented on the reliability of pile design and testing and use of large databases to reduce uncertainty.
- Garland Likins, from Pile Dynamics in the U.S., spoke on the need for thorough testing and the methods available.
- Maurice Bottiau, from Franki Foundations in Belgium, described current status and future trends in deep foundations including advancements in ground improvement techniques, the impact of equipment and material advancements, environmental considerations when selecting foundation types, and the importance of knowing the soil conditions with which you are dealing.
- Serge Varaskin, from Menard in France, discussed soil treatment and improvement.
- Antonio Marinucci of American Equipment and Bernie Hertlein of GEI Consultants, both from the U.S., spoke on the collaborative study between the U.S. and Europe on bored piles and practices in both regions.

The presentations were delivered in either English or Portuguese, with dual translation via headphones available.

Chu Ho of Arup’s New York office was chosen to provide a talk during one of the plenary sessions. He presented information on New York City’s Second Avenue Subway project and the importance of construction monitoring in the city’s crowded urban area. DFI members from Brazil also spoke or moderated sessions.
methods anaylsis

Numerical methods - 42%
In situ test based methods - 40%
Combined methods - 13%
Theoretical - 3%
Empirical approach - 2%

Experimental Testing Site Prediction Event

During a special session at SEFE 8, the results of the ISSMGE-sponsored Class A pile prediction event were presented. Engineers were invited to participate in the prediction of the load-settlement response of an axially loaded bored pile, including load-displacement curve, shaft and base loads at failure, and distribution of axial load along shaft at failure.

Over 70 predictions were made — 42% academics and 58% practitioners. Of these participants, 31% were from Europe, 22% from South America and 32% from North America, with 15% from another continent.

The pie chart shows the prediction methods that were utilized. The pile reached a bearing capacity of approximately 860 tons (780 tonnes).

Prediction Evaluation

The best prediction was evaluated considering 3 criteria:

- The pile axial load (Q) versus head displacement (w) curve, up to a head displacement of w/D ≥ 10%
- The shaft (Qs ) and base (Qb ) loads at failure (conventionally fixed at w/D = 10%)
- The distribution of axial load (N) along the shaft of the pile at failure (N versus depth z, at w/D = 10%)

The judging committee selected 3 participants as winners. A statistical analysis was run to define the winner. Three competitors ended up having virtually the same statistical residual values from measured and estimated loads and displacements. The winning participants were: Francesco Basile, Geomarc Italy; Dean Harries, CH2M HILL, USA; and Mehari Weldu, a graduate student from University of Kansas, USA.